

Hands off our grasslands

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Credit: Unsplash

In the north eastern Free State, a 60 km green corridor is being created that will link the upper Wilge Protected Environment to the Sneeuwberg.

The plan is to create a place of refuge for the [bird species](#) that are threatened by climate change and the destruction of South Africa's grasslands.

It will be an add-on to the already 17 456 hectares that became part of the Sneeuwberg Protected Environment in 2016.

For Dr. Melissa Howes-Whitecross, who works for BirdLife South Africa and is a Visiting Researcher at Wits' School of Animal, Plant and Environmental Sciences (APES), it is one answer to South Africa's dwindling unique [grassland](#) habitats.

As grasslands dwindle, so too does the biodiversity they sustain. Grassland mammals like Oribi and grey rhebok have experienced population declines, while grassland bird species have been particularly hard hit.

The bird that graces South Africa's coat of arms, the Secretary bird, has lost 50% of its population over the last three generations. To blame is habitat destruction, hunting and poisonings.

Other bird species are also being affected by climate change.

"Many of our grasslands are high altitude grasslands. We are finding that birds like the Yellow-breasted Pipit are extremely sensitive in terms of their breeding when it comes to average temperature increasing. So, there is a definite threshold where breeding fails," says Howes-Whitecross. "We are very concerned for these high-altitude grassland species."

The work towards creating green corridors is one of the first steps in protecting some of South Africa's most unique biodiversity, its grassland biome.

"One of the big problems about grasslands is that they are centered around places like Joburg, Bloemfontein and Pretoria, which means it is some of the most expensive land in the country," explains Professor Ed Witkowski, Head of the Restoration and Conservation Biology Research Group, and Professor of Plant Ecology at APES.

"There is a lot of mining activity in the area, it is valuable for agriculture and they have planted a lot of forests. So, declaring large areas of grasslands as nature reserves is expensive."

If the grasslands are wiped out, the loss will eventually impact the humans who were responsible for the destruction in the first place.

"It is a necessity for human well-being to have intact ecosystems. If you take a wetland, which usually falls within a grassland area, for example, they are vital for storing water, cleaning water and preventing floods," says Howes-Whitecross.

The Sneeuwberg Protected Environment happens to lie within a strategic water source area, which feeds rivers that provide water for many of South African cities. In a water-scarce country like South Africa, access to clean water is becoming a crisis, particularly for poorer communities.

As a recent study has shown, however, it is important that the right research is used in the fight against climate change and habitat destruction.

A paper by European scientists that appeared in *Science*, claimed that global tree planting could rid the planet of a third of the CO₂ emitted since the industrial revolution. Africa's grasslands were suggested as a prime spot to plant large numbers of trees.

In a technical comment that was published as a response to this article and, also published in *Science*, 46 scientists—including Wits ecologist Professor Sally Archibald – [warned that such large-scale afforestation could destroy ecological systems](#) and do little to reduce CO₂ levels.

"Firstly, their numbers are wrong," says Archibald. "It is irresponsible to give people false hope that our global change problems can be fixed in

this way. Secondly, the impacts on our natural ecosystems in Africa would be devastating."

Famous veld flower

Near the town of Haenertsburg in Limpopo, Sylvie Kremer-Köhne, an MSc graduate from APES is trying to make a small rare plant species famous.

Aloe lettyae has been made a flagship species for grasslands, meaning it has—much like a rhino—been chosen to be an ambassador for a particular habitat.

The aloe was described in 1937 and, until recently, little was known about its biology.

"It is our flagship species because it only occurs in the critically endangered Woodbush Granite Grassland, of which very little is left," says Kremer-Köhne. "So the first job was to figure out just how many populations there are, and where exactly they are."

The count revealed 10,800 plants clustered in several population groups.

Over the last century, exotic timber plantations—exactly what Archibald warns against—are believed to have destroyed more than 90% of the original Woodbush Granite Grassland. What is left is now squeezed onto small fragmented pieces of land.

In 1917 botanist Iltyd Buller Pole-Evans took a photograph of the Magoebaskloof, which lies close to Haenertsburg. A century later, a photographer stood in the near same spot as Pole-Evans and took an image of the same mountain.

What it revealed was how the Woodland Granite Grassland had been wiped out over the course of a century. Back in 1917, when the photograph was taken, the mountain was blanketed in grassland. By 2017, Magoebaskloof was covered by heavily wooded vegetation.

To Witkowski, the two photographs show the devastating effect humans have had on the environment. "You see a combination of plantations and bush encroachment," he says, adding that the bush encroachment on the mountain was most likely fuelled by global [climate change](#) and altered fire regimes to protect the plantation trees.

The biggest remnant of this grassland type is now protected in a 126-hectare provincial reserve that has been established just outside Haenertsburg. However, Kremer-Köhne believes it is not enough. Other measures need to be taken to protect this crucial ecosystem, such as ongoing efforts to teach farmers to farm in a way that minimises their impact on natural grasslands.

But, ultimately, it comes down to changing the way humans think about themselves. "As humans we often forget that we are just another cog in a big natural wheel that is turning," says Howes-Whitecross.

Provided by Wits University

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